

REMARKS

Claims 1-4 are pending in the present application. Claims 1-2 are directed to a processing aid for a vinyl chloride resin and claims 3-4 are directed to a vinyl chloride resin composition.

In the Office Action, claims 1-4 are rejected under 35 U.S.C. 102(b) as anticipated by, or under 35 U.S.C. 103(a) as obvious over, JP 01-215846 (Kishida), US 4,179,481 (Tuzuki), US 5,093,420 (Matsuba), or GB 1378434 (GB'434).

Reconsideration and withdrawal of the rejections is respectfully requested. The cited references disclose vinyl chloride resin compositions containing a foaming agent obtained by polymerizing (meth)acrylate ester except for methyl methacrylate as a main component in the presence of a first-stage polymer which contains methyl methacrylate as a main component. However, the specific viscosities disclosed in the cited references are considerably lower than the ranges of the present claims. In particular, the cited references fail to teach or suggest specific viscosity values of at least 0.7 for the first-stage polymer and 0.5 for the final polymer, as recited in present claim 1. Accordingly, the cited references fail to teach or suggest a processing aid as claimed in the present invention.

102/103

In the cited references, viscosity is measured by using benzene (i.e., as a solution of 0.4g in 100ml of benzene at 30°C), whereas, in the present invention, specific viscosity is measured in chloroform (i.e., as a solution of 0.1g in 100ml of chloroform at 30°C). However, the viscosity values according to the benzene method can be compared with the values according to the chloroform method with the equation obtained experimentally in Experiment 1 of the attached

102/103

Declaration by Ms. Sakashita, who is the first-named inventor in the present application. The equation is shown on page 3 of the Declaration.

Turning now to the cited references specifically, Tuzuki describes that the specific viscosity of the polymer as a whole is preferably at least 0.5 (by the benzene method), which corresponds to a specific viscosity of 0.24 by the chloroform method as in the present application. In particular, the Examples of Tuzuki disclose viscosities of 1.6 and 1.7 (by the benzene method), which corresponds to 0.37 and 0.38, respectively, by the chloroform method. Thus, these viscosity values are considerably lower than the viscosity of the final polymer in the presently claimed invention.

Further, Matsuba (US 5,093,420) discloses a specific viscosity of at least 1, and preferably at least 2 (also by the benzene method) which corresponds to 0.41 by the chloroform method as in the present application. The Examples of Matsuba disclose final viscosities of 1.5 and 3.4 (by the benzene method), which corresponds to 0.35 and 0.57, respectively, by the chloroform method. However, viscosities of first-stage polymers are calculated to be at most 0.65 with the chloroform method. Further, the final viscosity in Comparative Example 5 of Matsuba is 5 (by the benzene method). As shown in Experiment 2 of the attached Declaration, this viscosity value corresponds to a first-stage polymer viscosity and final polymer viscosity of 0.64 and 0.58, respectively, as measured by the chloroform method.

Next, Kishida does not defines the specific viscosity. However, the amount of catalyst in the composition of Kishida is 0.2 part by weight based on 100 parts of the monomer, which

corresponds to 40 times the catalyst amount of 0.005 phr in the Examples of the present application. In addition, Kishida uses t-dodecylmercaptan, a chain transfer agent. As a result, it is clear that the viscosity of the polymer composition of Kishida is well under 0.5 as measured by the chloroform method.

In summary, in all the cited references, the specific viscosity of the final polymer is well under 0.5, the viscosity of the first-stage polymer is well under 0.7, as measured by the chloroform method, or both.

In contrast, the composition of the present invention, in which the first-stage polymer has a specific viscosity of at least 0.7 and the final polymer has a specific viscosity of at least 0.5 (measured by the chloroform method), as recited in present claim 1, provides excellent gellation properties and foamability while maintaining transparency. The improved properties are evidenced in particular by comparing the properties of the polymers prepared in Example 17-20 of the present application, in which the first-stage polymer viscosity is at least 0.7, with the properties of the polymer prepared in Comparative Example 10, in which the first-stage polymer viscosity is low. This feature of the present invention and its advantages are not taught or suggested in any of the cited references, and therefore, the present claims are not obvious over the cited references taken alone or in any combination.

In view of the above, it is submitted that the rejection should be withdrawn.

In conclusion, the invention as presently claimed is patentable. It is believed that the claims are in allowable condition and a notice to that effect is earnestly requested.

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In the event there is, in the Examiner's opinion, any outstanding issue and such issue may be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of the response period. Please charge the fee for such extension and any other fees which may be required to our Deposit Account No. 01-2340.

Respectfully submitted,

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Encl.: Petition for One-Month Extension of Time